FIG.1

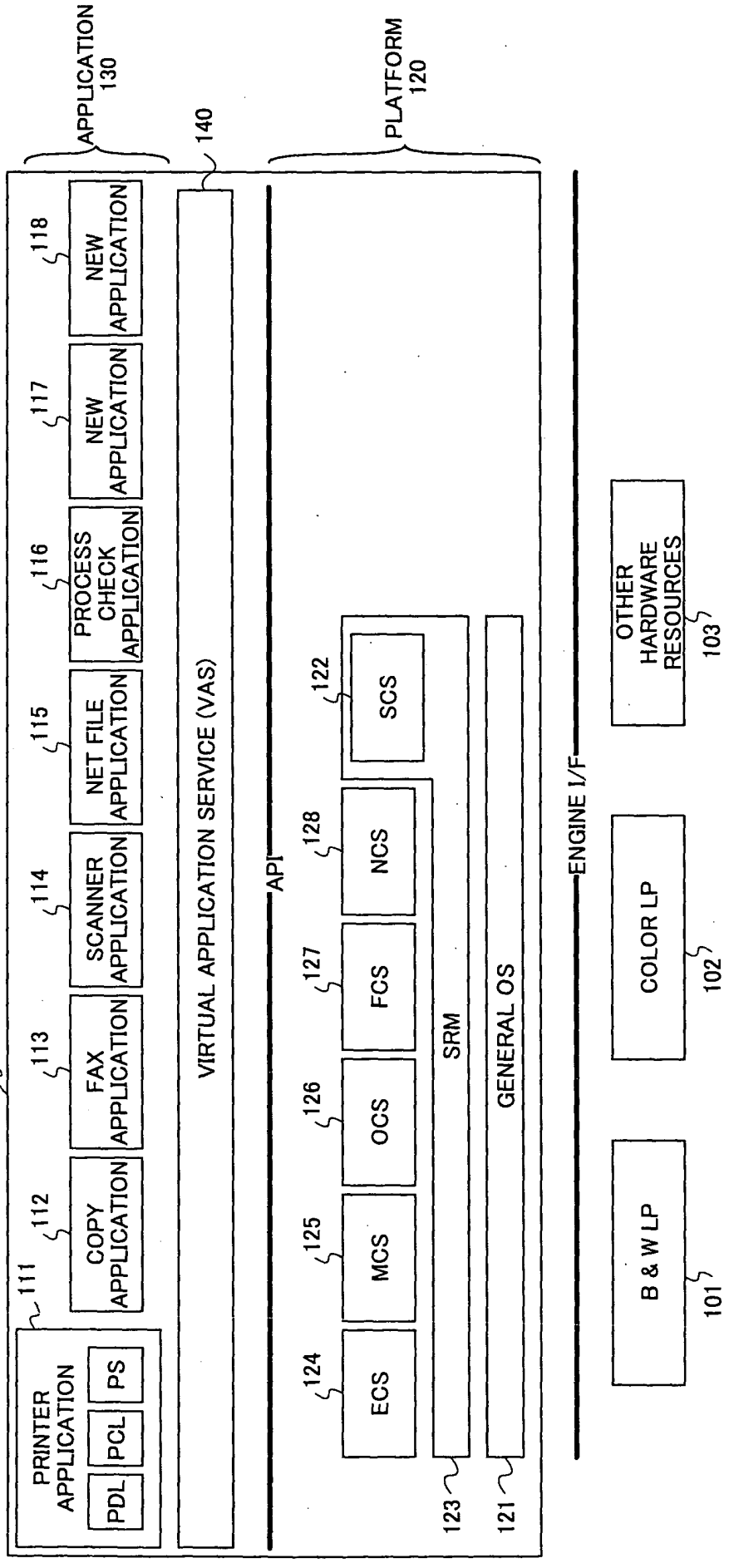

100 COMPOUND MACHINE
110 SOFTWARE GROUP
APPLICATION 130
PLATFORM 120
140
PRINTER APPLICATION
PDL
PCL
PS
111
COPY APPLICATION
112
FAX APPLICATION
113
SCANNER APPLICATION
114
NET FILE APPLICATION
115
PROCESS CHECK APPLICATION
116
NEW APPLICATION
117
NEW APPLICATION
118
VIRTUAL APPLICATION SERVICE (VAS)
API
ECS
124
MCS
125
OCS
126
FCS
127
NCS
128
SCS
122
SRM
123
GENERAL OS
121
ENGINE I/F
B & W LP
101
COLOR LP
102
OTHER HARDWARE RESOURCES
103

FIG.2

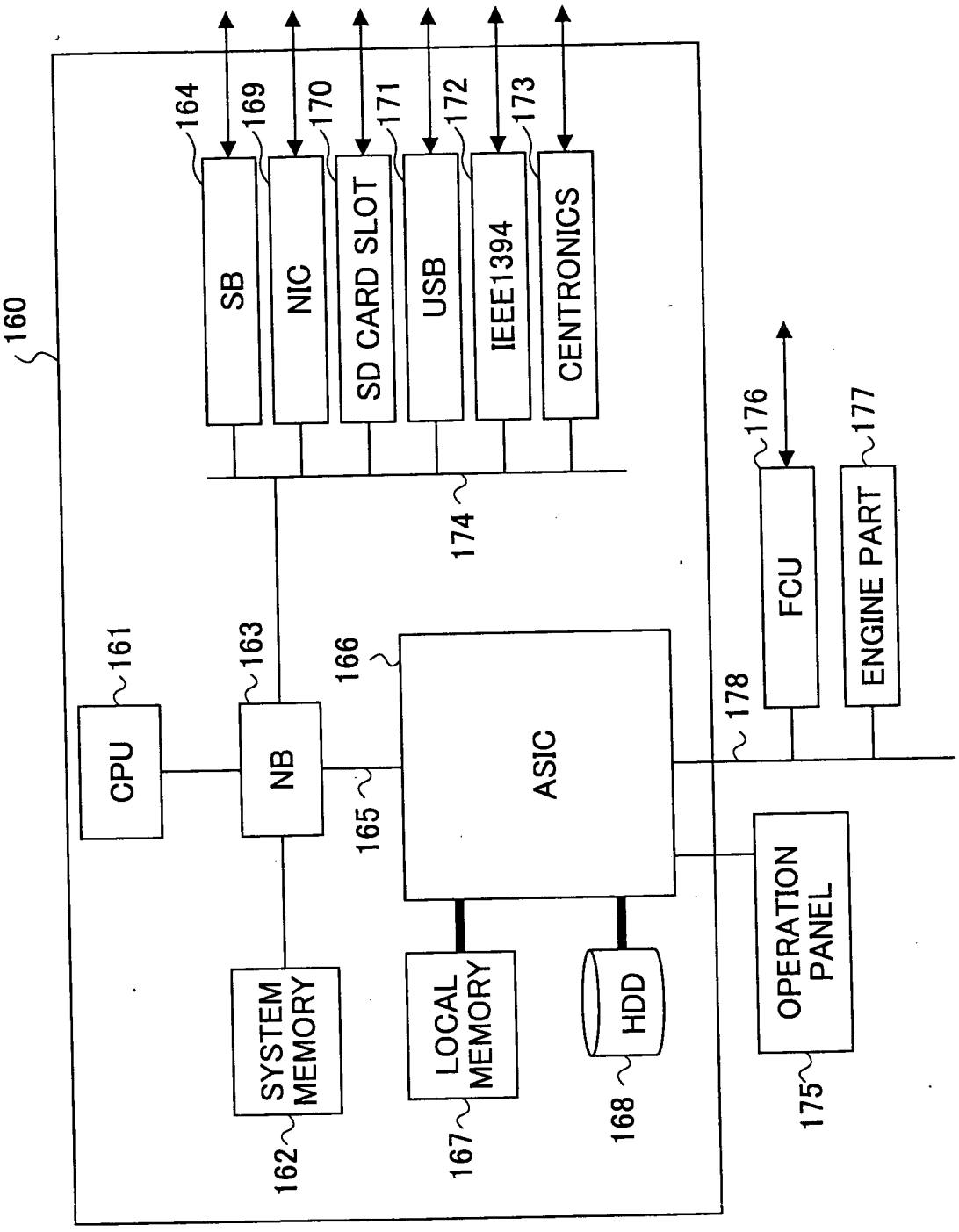

160
164
169
170
171
172
173
SB
NIC
SD CARD SLOT
USB
IEEE1394
CENTRONICS
174
176
177
FCU
ENGINE PART
178
161
163
166
CPU
NB
ASIC
165
SYSTEM MEMORY
LOCAL MEMORY
HDD
OPERATION PANEL
162
167
168
175

FIG.3

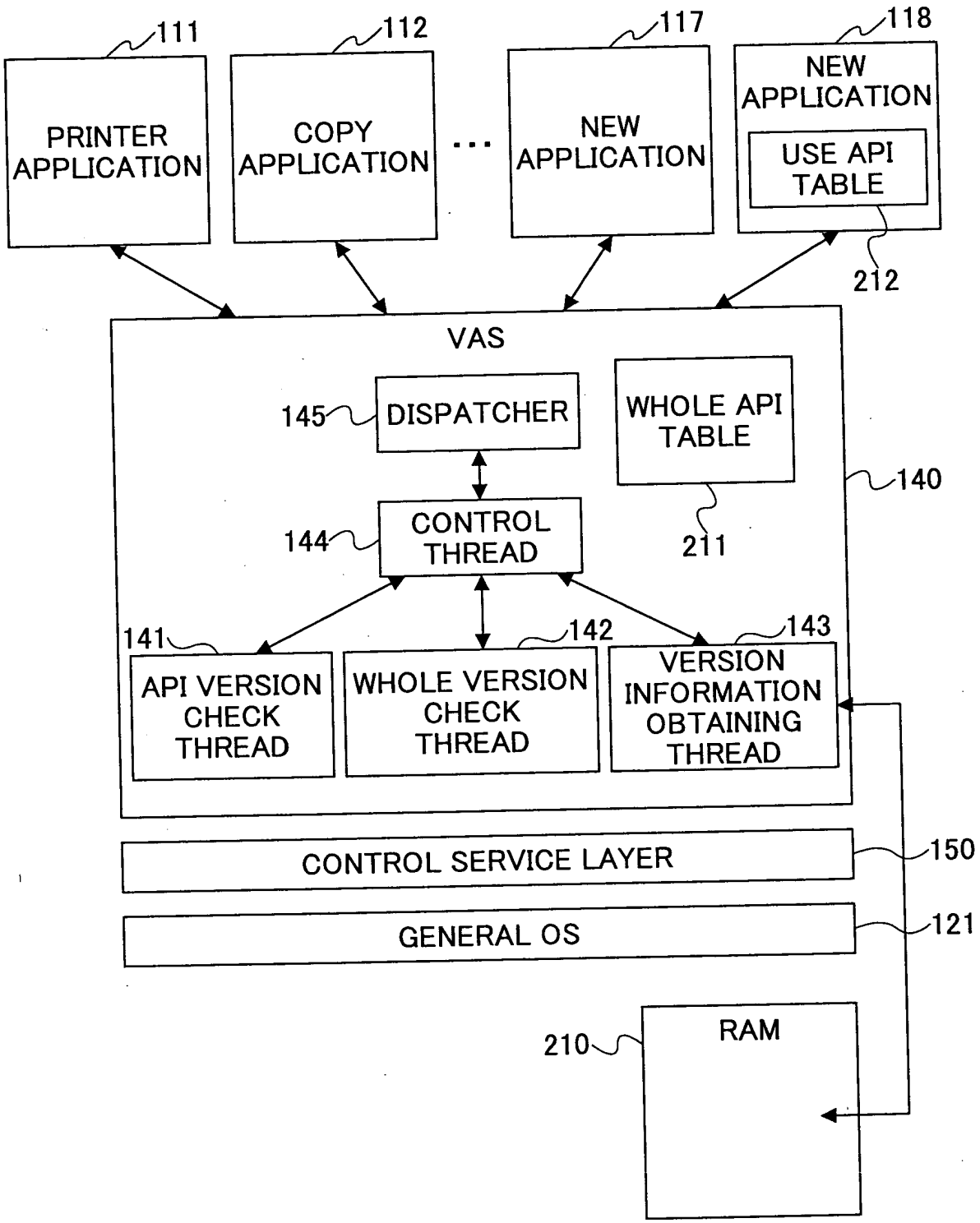

111
112
117
118
PRINTER APPLICATION
COPY APPLICATION
...
NEW APPLICATION
NEW APPLICATION
USE API TABLE
212
VAS
145
DISPATCHER
WHOLE API TABLE
140
144
CONTROL THREAD
211
141
142
143
API VERSION CHECK THREAD
WHOLE VERSION CHECK THREAD
VERSION INFORMATION OBTAINING THREAD
CONTROL SERVICE LAYER
150
GENERAL OS
121
210
RAM

FIG.4

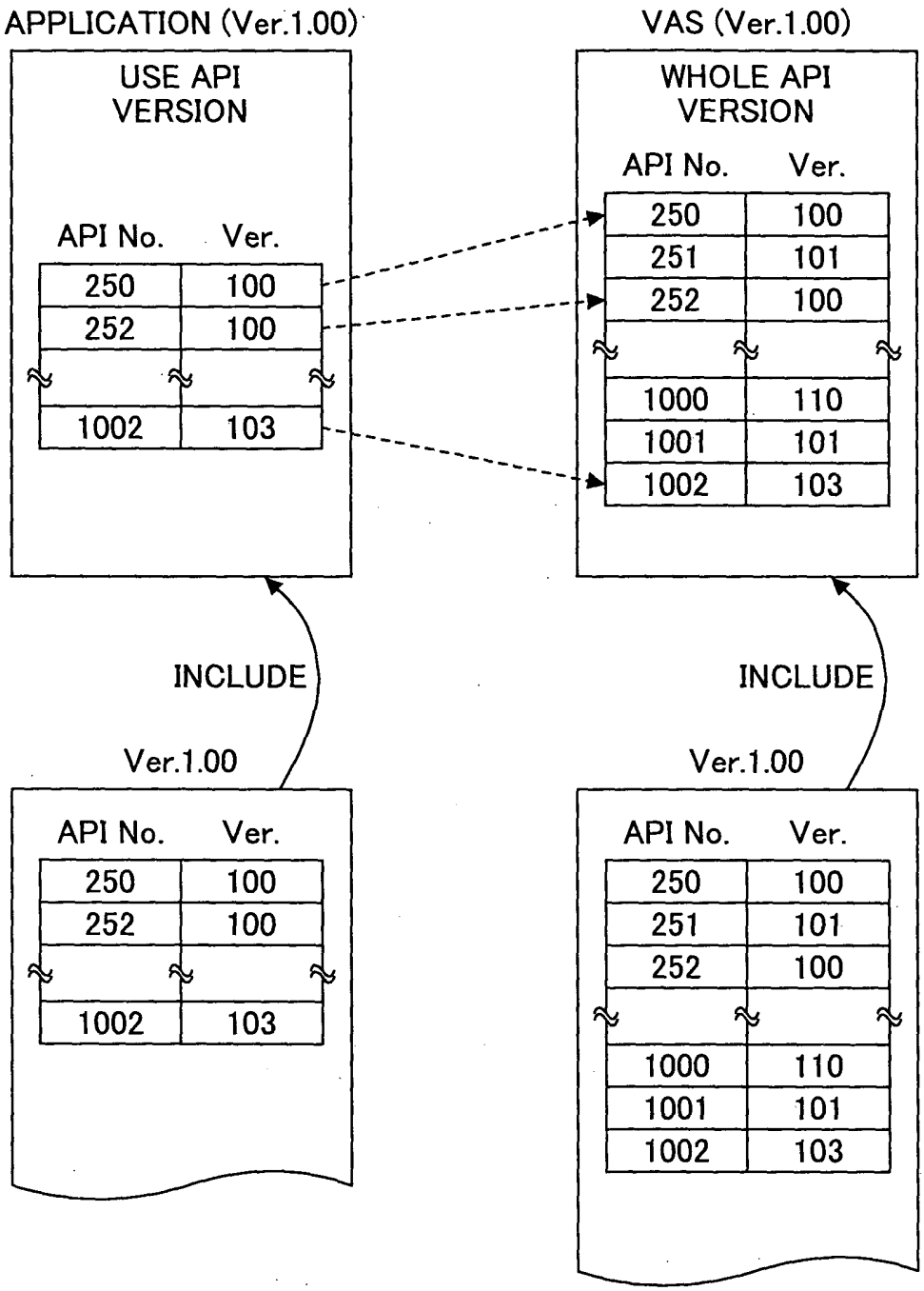

APPLICATION (Ver.1.00)
USE API VERSION
API No.
Ver.
250
100
252
100
1002
103
VAS (Ver.1.00)
WHOLE API VERSION
API No.
Ver.
250
100
251
101
252
100
1000
110
1001
101
1002
103
INCLUDE
Ver.1.00
API No.
Ver.
250
100
252
100
1002
103
INCLUDE
Ver.1.00
API No.
Ver.
250
100
251
101
252
100
1000
110
1001
101
1002
103

FIG.5

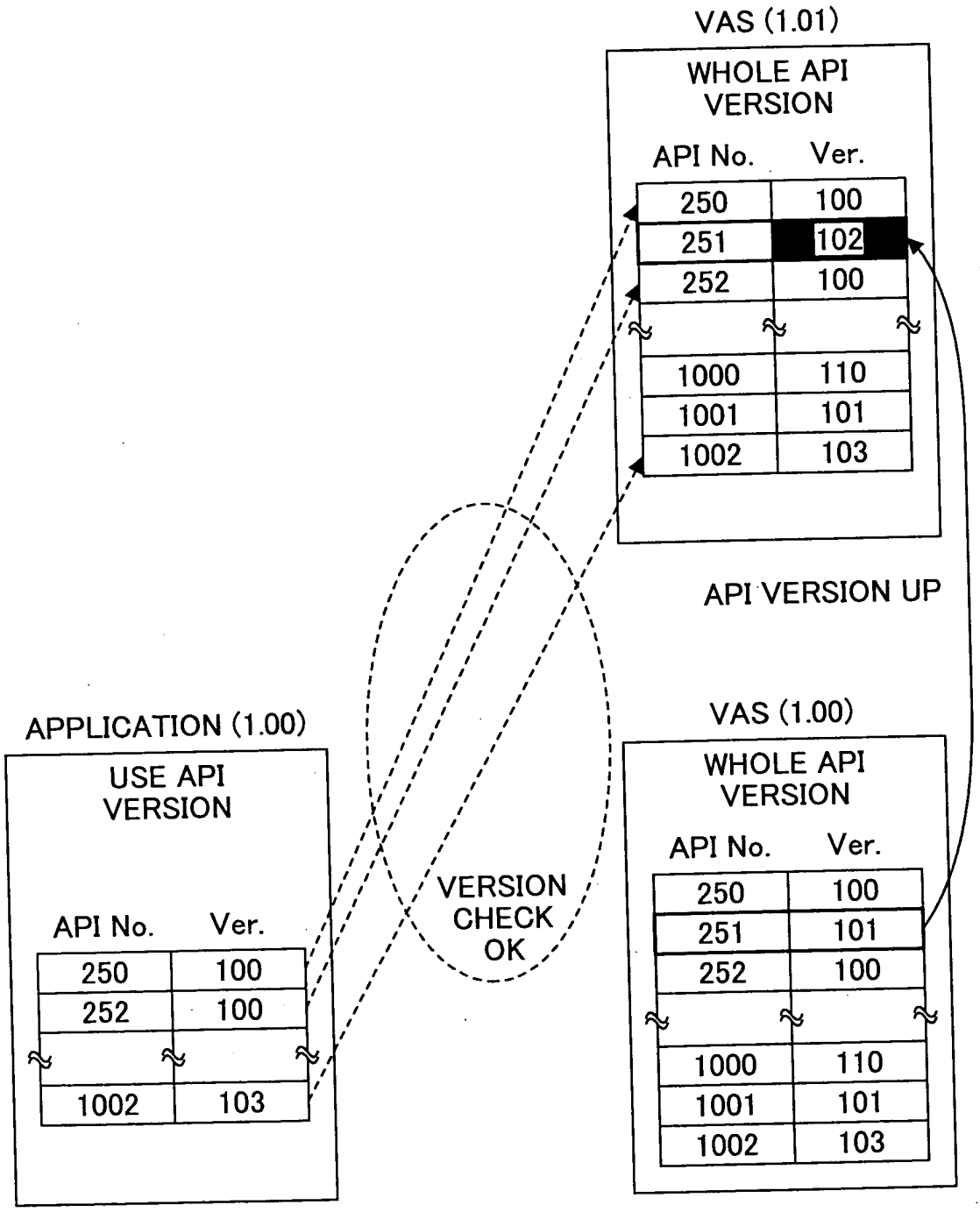

VAS (1.01)
WHOLE API VERSION
API No.
Ver.
250
100
251
102
252
100
1000
110
1001
101
1002
103
API VERSION UP
APPLICATION (1.00)
USE API VERSION
API No.
Ver.
250
100
252
100
1002
103
VERSION CHECK OK
VAS (1.00)
WHOLE API VERSION
API No.
Ver.
250
100
251
101
252
100
1000
110
1001
101
1002
103

FIG.6

```
int main(int argc, char** argv)
{
  if(argc==2) {
      if(strcmp(argv[1], "-v")==0)
            //EXECUTE TENTATIVE LAUNCH
             if(ConnectVAS()==OK){  //PREPARE COMMUNICATION WITH VAS
                  SetApliInfo();        //PROVIDING APPLICATION INFORMATION
                       Close            //END OF COMMUNICATION
              }
              exit(1)
      }
   }
  NORMAL LAUNCH PROCESSING
}
```

FIG.7

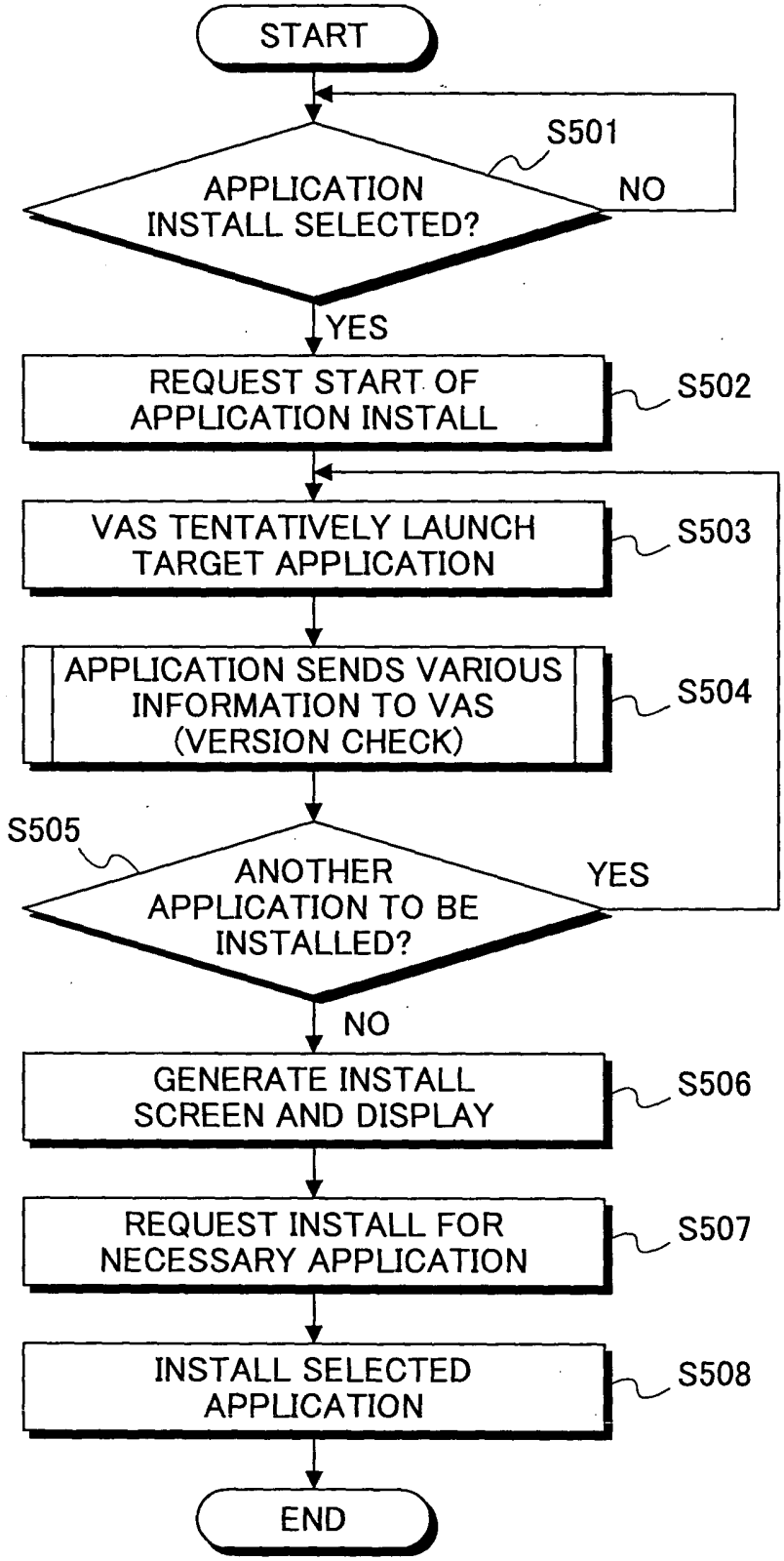

START
S501
APPLICATION INSTALL SELECTED?
NO
YES
REQUEST START OF APPLICATION INSTALL
S502
VAS TENTATIVELY LAUNCH TARGET APPLICATION
S503
APPLICATION SENDS VARIOUS INFORMATION TO VAS (VERSION CHECK)
S504
S505
ANOTHER APPLICATION TO BE INSTALLED?
YES
NO
GENERATE INSTALL SCREEN AND DISPLAY
S506
REQUEST INSTALL FOR NECESSARY APPLICATION
S507
INSTALL SELECTED APPLICATION
S508
END

FIG.8

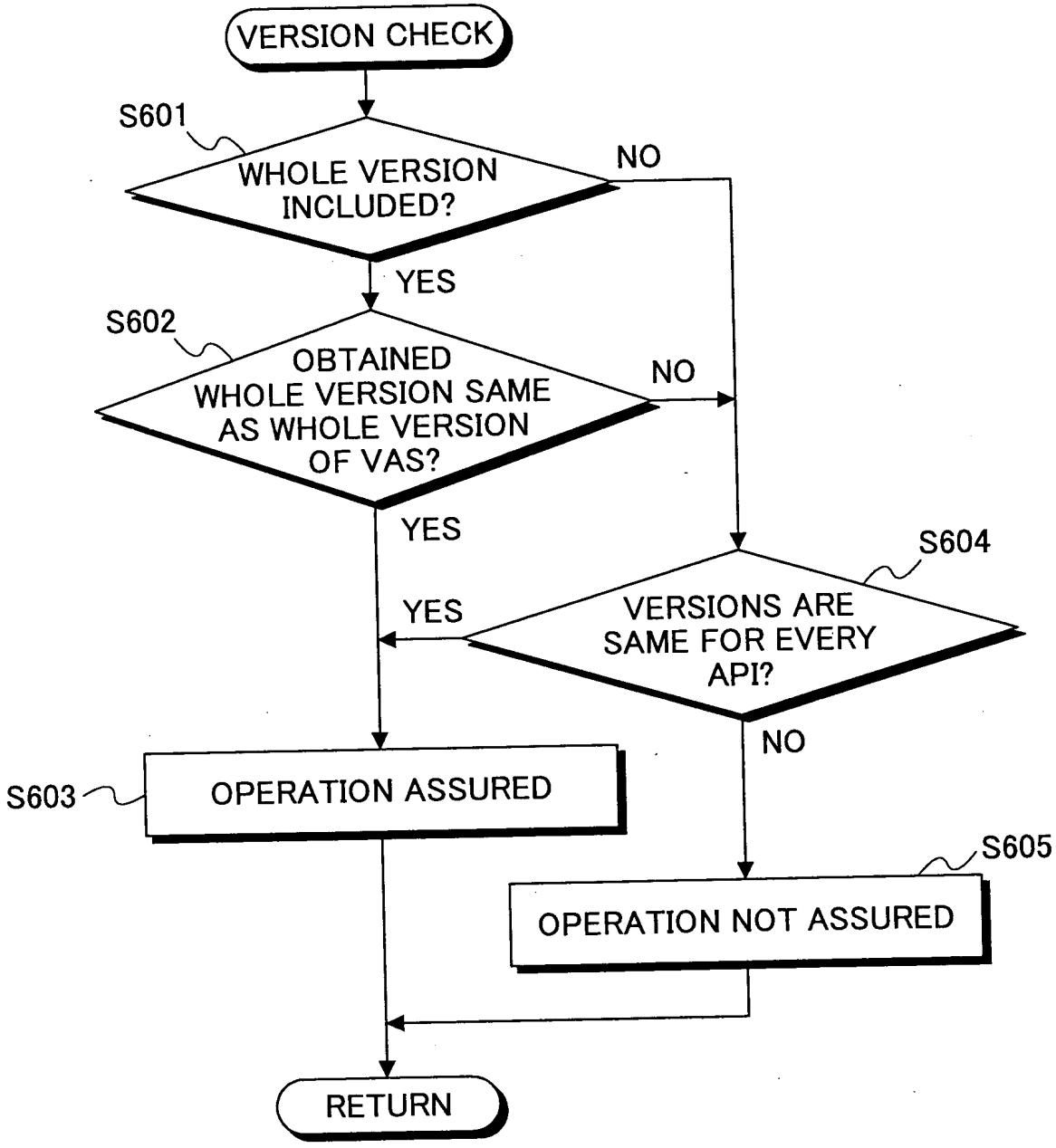

VERSION CHECK
S601
WHOLE VERSION INCLUDED?
NO
YES
S602
OBTAINED WHOLE VERSION SAME AS WHOLE VERSION OF VAS?
NO
YES
S604
VERSIONS ARE SAME FOR EVERY API?
YES
NO
S603
OPERATION ASSURED
S605
OPERATION NOT ASSURED
RETURN

FIG.9

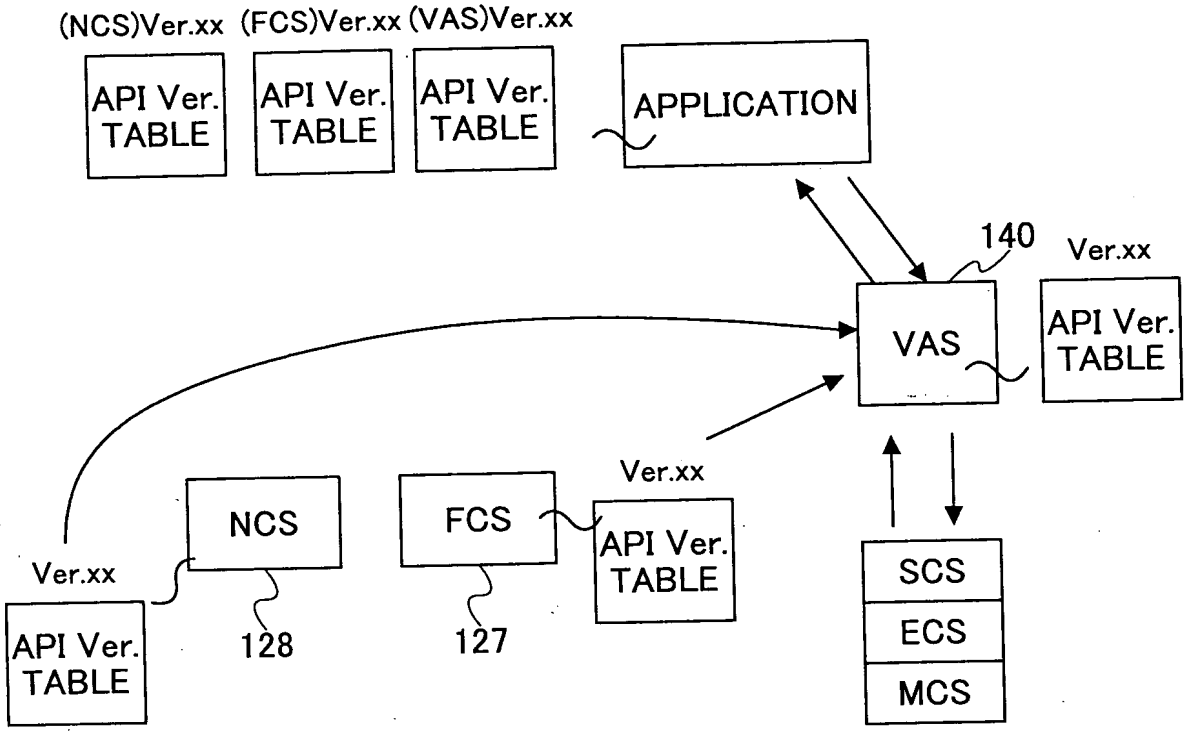


FIG.10

NCS	Ver. 1.2
FCS	Ver. 2.5
VAS	Ver. 3.0

FIG.11

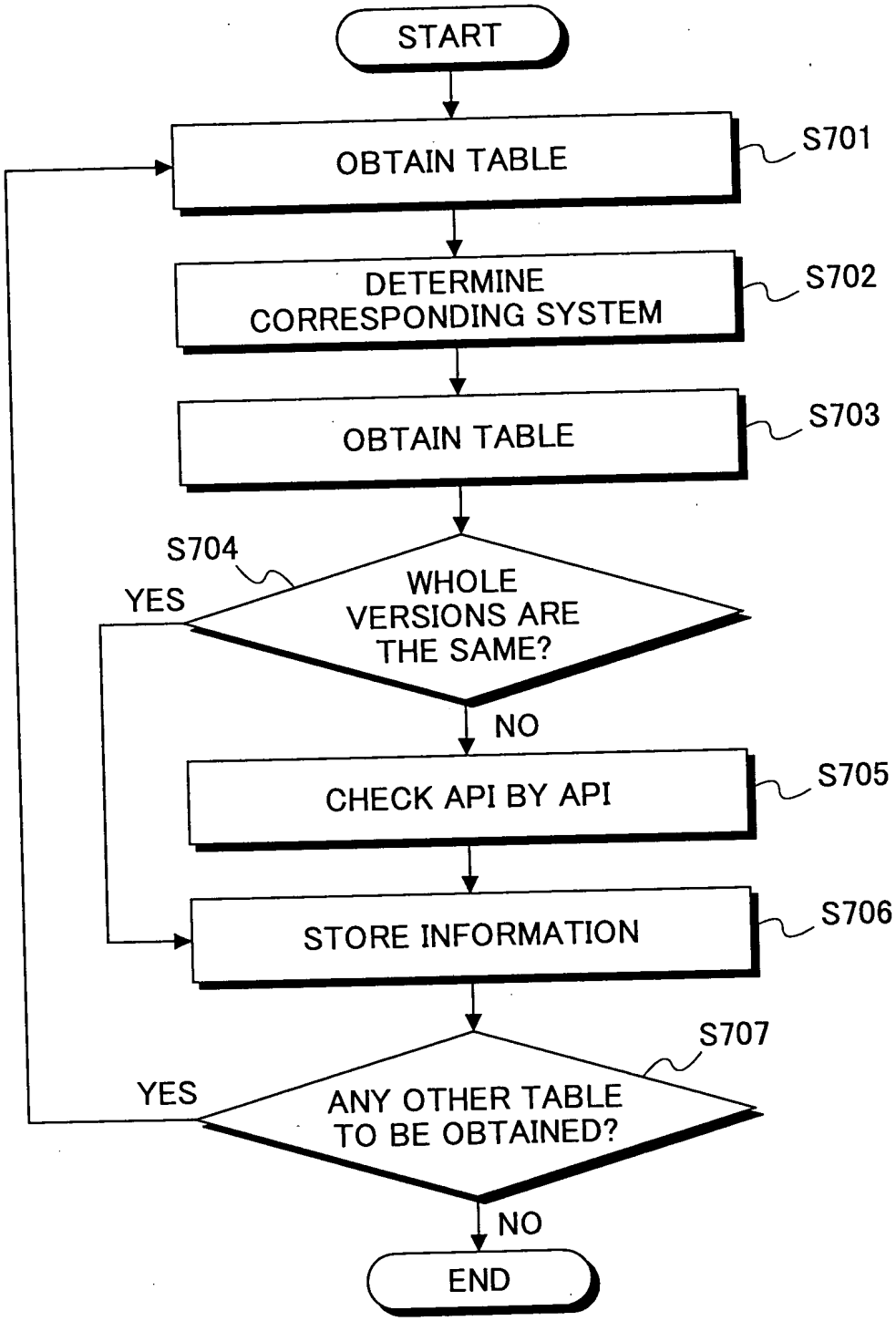

START
OBTAIN TABLE
S701
DETERMINE CORRESPONDING SYSTEM
S702
OBTAIN TABLE
S703
S704
WHOLE VERSIONS ARE THE SAME?
YES
NO
CHECK API BY API
S705
STORE INFORMATION
S706
S707
ANY OTHER TABLE TO BE OBTAINED?
YES
NO
END

FIG.12

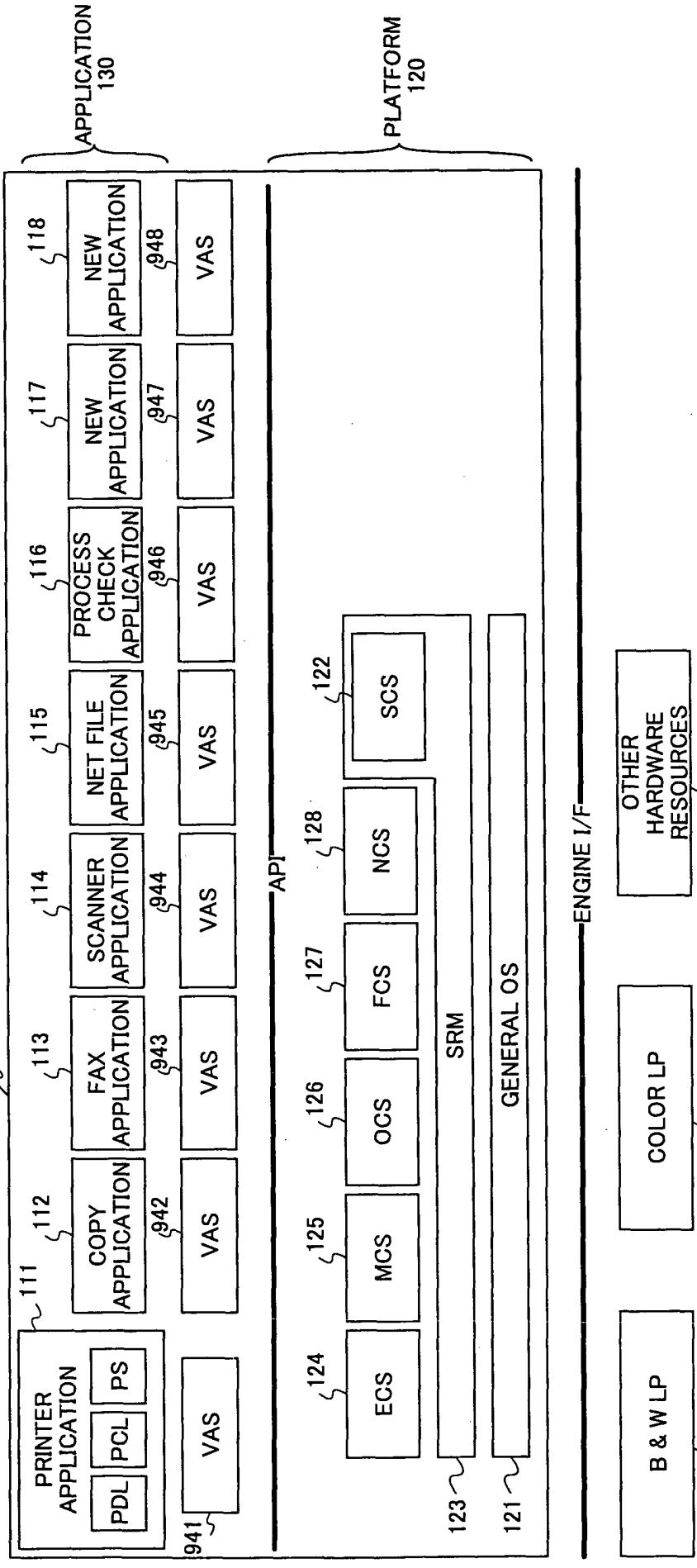
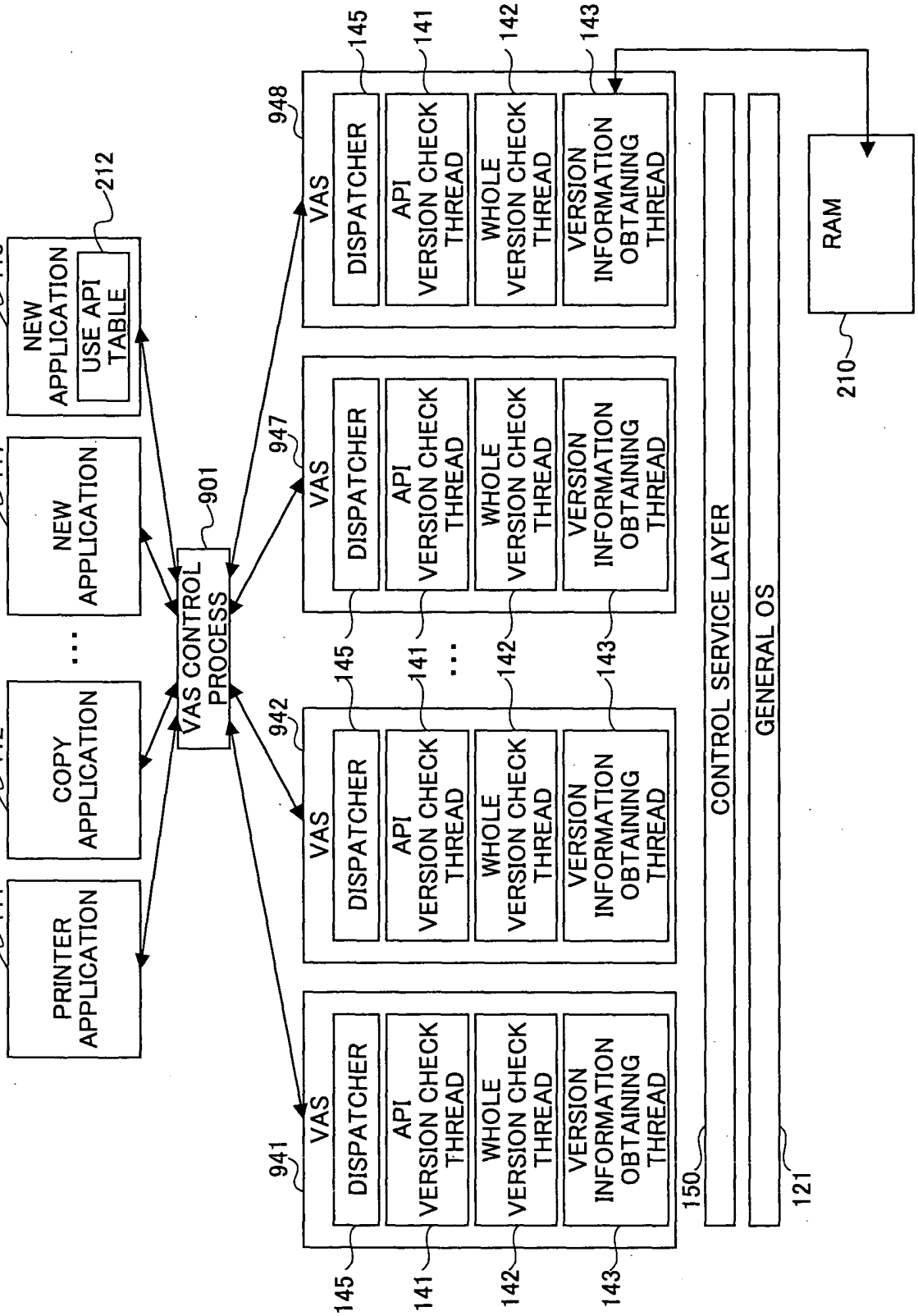

900 COMPOUND MACHINE
110 SOFTWARE GROUP
APPLICATION 130
PLATFORM 120
PRINTER APPLICATION
PDL
PCL
PS
111
COPY APPLICATION
112
FAX APPLICATION
113
SCANNER APPLICATION
114
NET FILE APPLICATION
115
PROCESS CHECK APPLICATION
116
NEW APPLICATION
117
NEW APPLICATION
118
941
942
943
944
945
946
947
948
VAS
API
ECS
MCS
OCS
FCS
NCS
SCS
124
125
126
127
128
122
SRM
123
GENERAL OS
121
ENGINE I/F
B & W LP
101
COLOR LP
102
OTHER HARDWARE RESOURCES
103

FIG.13


PRINTER APPLICATION
111
COPY APPLICATION
112
NEW APPLICATION
117
NEW APPLICATION
USE API TABLE
118
212
VAS CONTROL PROCESS
901
VAS
DISPATCHER
API VERSION CHECK THREAD
WHOLE VERSION CHECK THREAD
VERSION INFORMATION OBTAINING THREAD
941
942
947
948
145
141
142
143
CONTROL SERVICE LAYER
150
GENERAL OS
121
RAM
210

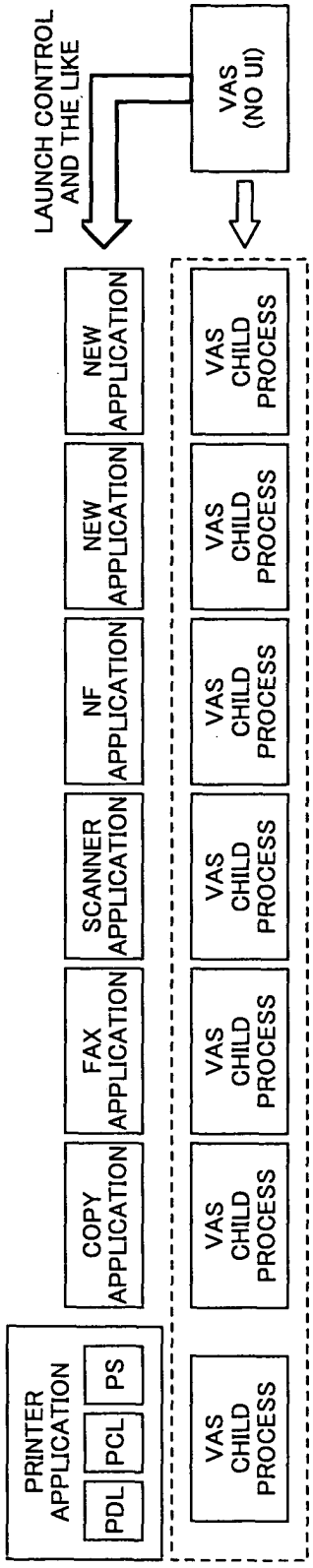


FIG.14A

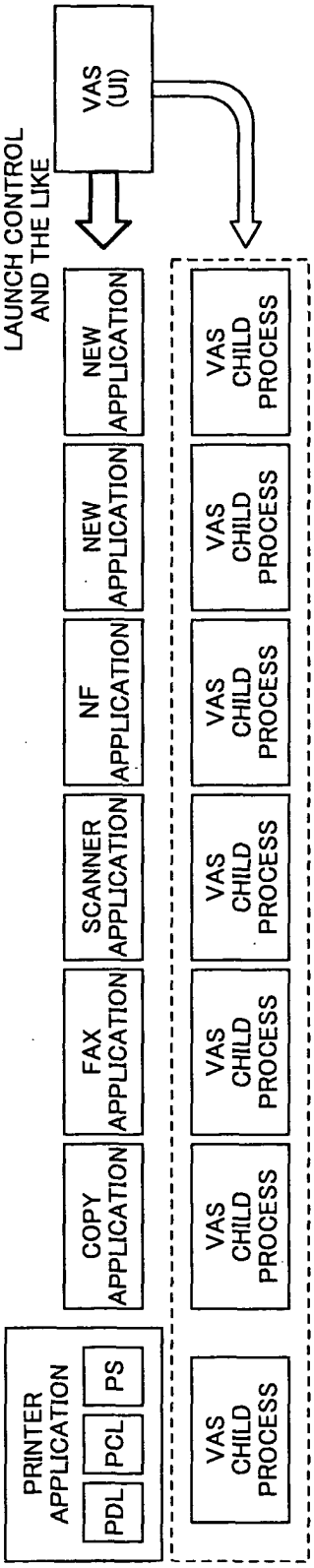


FIG.14B

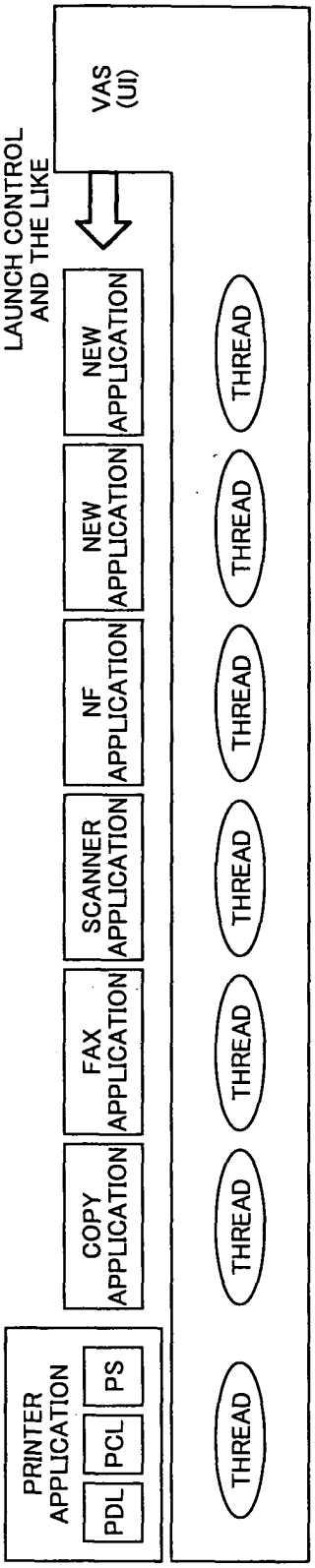


FIG.14C